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Attorney Docket No. 10577-404

U.S. DEPARTMENT OF COMMERCE  
Patent and Trademark Office



100436861

al documents or copy thereof.

2. Name and address of receiving party(ies): MAY 07 1997

Name: Tandem Computers Incorporated

Additional name(s) of conveying party(ies) attached?  
☐ Yes ☒ No

Internal Address:

Street Address: 10435 North Tantau Avenue

City: Cupertino State: California ZIP: 95014

### 3. Nature of conveyance:

<input checked="" type="checkbox"/> Assignment	<input type="checkbox"/> Merger
<input type="checkbox"/> Security Agreement	<input type="checkbox"/> Change of Name
<input type="checkbox"/> Other:	

Execution Date: 4/29/97 and 4/30/97

Additional name(s) & address(es) attached? ☐ Yes ☒ No

4. Application number(s) or patent number(s).

If this document is being filed together with a new application, the execution date of the application is:

Patent Application No.(s) 08/784,453

**B. Patent No.(s)**

Additional numbers attached? ☐ Yes ☒ No

5. Name and address of party to whom correspondence concerning document should be mailed:

6. Total number of applications and patents involved: 1

Name: Robert J. Bennett  
TOWNSEND and TOWNSEND and CREW LLP  
Two Embarcadero Center, 8th Floor  
San Francisco, California 94111-3834  
(415) 576-0200

7. Total fee (37 CFR 3.41):..... \$ 40.00

☐ Enclosed      ☒ Charge Fees to Deposit Account

☒ Charge any additional fees associated with this paper or during the pendency of this application, or credit any overpayment, to deposit account

8. Deposit account number: 20-1430

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9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Robert J. Bennett  
Name of Person Signing

Signature

Atty. Reg. No. 27,533

Total number of pages including cover sheet, attachments, and document: 4

10. *Change Correspondence Address to that of Part 5?* ☒ Yes ☐ No

OMB No. 0651-0011 (exp. 4/94)

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 Sale Ref: 0000037 DAI: 2023300 08784453  
 01 FT:5A1 40.00 CR

**ASSIGNMENT OF PATENT APPLICATION**

**JOINT**

WHEREAS, Thomas Collins of 14890 Baranza Lane, Saratoga, California 95070, Dale Hopkins of 2425 Ric Drive, Gilroy, California 95020, Susan Langford of 1275 Poplar Avenue, #101, Sunnyvale, California 94086 and Michael Sabin of 883 Mango Avenue, Sunnyvale, California 94087, hereinafter referred to as "Assignors," are the inventors of the invention described and set forth in the below identified application for United States Letters Patent:

Title of the Invention: **PUBLIC KEY CRYPTOGRAPHIC APPARATUS AND METHOD**

Date(s) of execution of Declaration: \_\_\_\_\_

Filing date: January 16, 1997 Application No.: 08/784,453; and

WHEREAS, TANDEM COMPUTERS INCORPORATED a Delaware Corporation, located at 10435 North Tantau Avenue, Loc. 200-16, Cupertino, California 95014, hereinafter referred to as "Assignee," is desirous of acquiring an interest in the invention and application and in any Letters Patent and Registrations which may be granted on the same;

For good and valuable consideration, receipt of which is hereby acknowledged by Assignors, Assignors have assigned, and by these presents do assign to Assignee all right, title and interest in and to the invention and application and to all foreign counterparts (including patent, utility model and industrial designs), and in and to any Letters Patent and Registrations which may hereafter be granted on the same in the United States and all countries throughout the world, and to claim the priority from the application as provided by the Paris Convention. The right, title and interest is to be held and enjoyed by Assignee and Assignee's successors and assigns as fully and exclusively as it would have been held and enjoyed by Assignors had this assignment not been made, for the full term of any Letters Patent and Registrations which may be granted thereon, or of any division, renewal, continuation in whole or in part, substitution, conversion, reissue, prolongation or extension thereof.

Assignors further agree that they will, without charge to Assignee, but at Assignee's expense, (a) cooperate with Assignee in the prosecution of U.S. Patent applications and foreign counterparts on the invention and any improvements, (b) execute, verify, acknowledge and deliver all such further papers, including patent applications and instruments of transfer and (c) perform such other acts as Assignee lawfully may request to obtain or maintain Letters Patent and Registrations for the invention and improvements in any and all countries, and to vest title thereto in Assignee, or Assignee's successors and assigns.

IN TESTIMONY WHEREOF, Assignors have signed their names on the dates indicated.

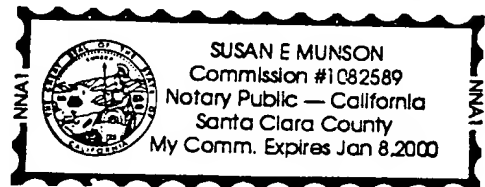
Date: 4-30-97

Thomas W. Collins  
THOMAS COLLINS

STATE OF California  
COUNTY OF Santa Clara

On 30 April, 1997, before me, Susan Munson, Notary Public (here insert name and title of the officer), personally appeared **Thomas Collins**, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, execute the instrument.

WITNESS my hand and official seal.



Signature Susan E. Munson (Seal)

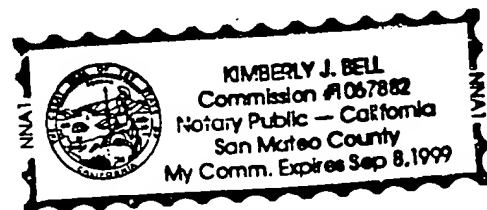
Date: 4/29/97

Dale Hopkins  
DALE HOPKINS

STATE OF California  
COUNTY OF Santa Clara

On April 29, 1997, before me, Kimberly J. Bell, Notary Public (here insert name and title of the officer), personally appeared **Dale Hopkins**, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, execute the instrument.

WITNESS my hand and official seal.



Signature Kimberly J. Bell (Seal)

Date: 4/29/97

Susan K. Langford  
SUSAN LANGFORD

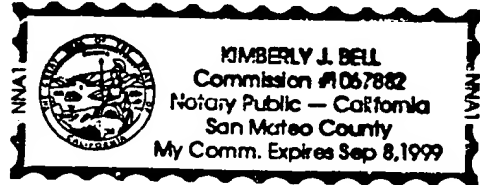
STATE OF California

COUNTY OF Santa Clara

On April 29, 1997, before me, Kimberly J. Bell, Notary Public (here insert name and title of the officer), personally appeared Susan Langford, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that she executed the same in her authorized capacity, and that by her signature on the instrument the person, or the entity upon behalf of which the person acted, execute the instrument.

WITNESS my hand and official seal.

Signature Kimberly J. Bell (Seal)



Date: 30 APR 97

Michael P. Sabin  
MICHAEL SABIN

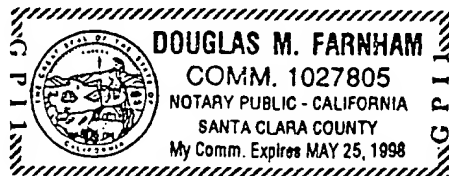
STATE OF California

COUNTY OF Santa Clara

On April 30, 1997, before me, Douglas M. Farnham (here insert name and title of the officer), personally appeared Michael Sabin, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, execute the instrument.

WITNESS my hand and official seal.

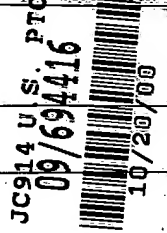
Signature Douglas M. Farnham (Seal)




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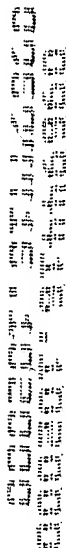
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

<b>REISSUE APPLICATION BY THE INVENTOR(S), OFFER TO SURRENDER PATENT</b>		Docket Number: 20206-014(PT-TA-410) Patent: 5,848,159	
This is part of the application for a reissue patent based on the original patent identified below.			
Name of Patentee(s)	Thomas Collins, Dale Hopkins, Susan Langford, Micahel Sabin		
Patent Number	5,848,159	Date Patent Issued	December 8, 1998
Title of Invention	PUBLIC KEY CRYPTOGRAPHIC APPARATUS AND METHOD		
I am the  <input type="checkbox"/> inventor (if only one name is listed herein) of the original patent.  <input checked="" type="checkbox"/> joint inventor (if plural names are listed herein) of the original patent.  I offer to surrender the original patent.  1. <input checked="" type="checkbox"/> Filed herein is a certificate under 37 CFR 3.73(b).  2. <input type="checkbox"/> Ownership of the patent is in the inventor(s), and no assignment of the patent has been made.  One of boxes 1 or 2 above must be checked.  The written consent of all assignees owning an undivided interest in the original patent is included in this application for reissue.			
Signature		Date:	
Typed or printed name:	Thomas Collins		
Signature		Date:	
Typed or printed name:	Dale Hopkins		
Signature		Date:	
Typed or printed name:	Susan Langford		
Signature		Date:	
Typed or printed name:	Michael Sabin		
The assignee owning an undivided interest in said original patent is <u>Compaq Computer Corporation</u> , and the assignee consents to the accompanying application for reissue.			



I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application, any patent issued thereon, or any patent to which this declaration is directed.

Name of Assignee	Compaq Computer Corporation
Signature of Person Signing for the Assignee	
Type/printed name and title of person signing for assignee	Theodore S. Park, Senior Intellectual Property Counsel





**CONSENT OF ASSIGNEE TO REISSUE  
APPLICATION**

Docket Number: 20206-014(PT-TA-410)

This is part of the application for a reissue patent based on the original patent identified below.

Name of  
Patentee(s): COLLINS et al.

Patent Number: 5,848,159

Patent Issued

December 8, 1998

Title of Invention PUBLIC KEY CRYPTOGRAPHIC APPARATUS AND METHOD

As an authorized agent empowered to act on behalf of Compaq Computer Corporation, the assignee of the entire interest in the original patent, I hereby consent to the filing of the present application for reissue of the original patent.



A certificate under 37 CFR(b) is attached.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application, any patent issued thereon, or any patent to which this declaration is directed.

Name of Assignee

Compaq Computer Corporation

Signature of Person  
Signing for Assignee



Printed name and title of  
person signing for assignee

Theodore S. Park, Counsel

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<b>REISSUE APPLICATION BY THE INVENTOR(S), OFFER TO SURRENDER PATENT</b>		Docket Number: 20206-014(PT-TA-410) Patent: 5,848,159	
This is part of the application for a reissue patent based on the original patent identified below.			
Name of Patentee(s)	Thomas Collins, Dale Hopkins, Susan Langford, Michael Sabin		
Patent Number	5,848,159	Date Patent Issued	December 8, 1998
Title of Invention	PUBLIC KEY CRYPTOGRAPHIC APPARATUS AND METHOD		
I am the <input type="checkbox"/> inventor (if only one name is listed herein) of the original patent. <input checked="" type="checkbox"/> joint inventor (if plural names are listed herein) of the original patent. I offer to surrender the original patent. 1. <input checked="" type="checkbox"/> Filed herein is a certificate under 37 CFR 3.73(b). 2. <input type="checkbox"/> Ownership of the patent is in the inventor(s), and no assignment of the patent has been made. One of boxes 1 or 2 above must be checked. The written consent of all assignees owning an undivided interest in the original patent is included in this application for reissue.			
Signature	<i>Thomas Collins</i>	Date:	<i>Oct. 20, 2000</i>
Typed or printed name:		Thomas Collins	
Signature	<i>Dale Hopkins</i>	Date:	<i>Oct. 20, 2000</i>
Typed or printed name:		Dale Hopkins	
Signature	<i>Susan K. Langford</i>	Date:	<i>Oct. 20, 2000</i>
Typed or printed name:		Susan Langford	
Signature		Date:	
Typed or printed name:		Michael Sabin	
The assignee owning an undivided interest in said original patent is <u>Compaq Computer Corporation</u> , and the assignee consents to the accompanying application for reissue.			

jc914 U.S. PTO  
09/694416  
10/20/00

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application, any patent issued thereon, or any patent to which this declaration is directed.

Name of Assignee	Compaq Computer Corporation
Signature of Person Signing for the Assignee	
Type/printed name and title of person signing for assignee	Theodore S. Park, Senior Intellectual Property Counsel

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<b>REISSUE APPLICATION BY THE INVENTOR(S), OFFER TO SURRENDER PATENT</b>		Docket Number: 20206-014(PT-TA-410) Patent: 5,848,159	
This is part of the application for a reissue patent based on the original patent identified below.			
Name of Patentee(s)	Thomas Collins, Dale Hopkins, Susan Langford, Michael Sabin		
Patent Number	5,848,159	Date Patent Issued	December 8, 1998
Title of Invention	PUBLIC KEY CRYPTOGRAPHIC APPARATUS AND METHOD		
I am the <input type="checkbox"/> inventor (if only one name is listed herein) of the original patent. <input checked="" type="checkbox"/> joint inventor (if plural names are listed herein) of the original patent.			
I offer to surrender the original patent. 1. <input checked="" type="checkbox"/> Filed herein is a certificate under 37 CFR 3.73(b). 2. <input type="checkbox"/> Ownership of the patent is in the inventor(s), and no assignment of the patent has been made. One of boxes 1 or 2 above must be checked.			
The written consent of all assignees owning an undivided interest in the original patent is included in this application for reissue.			
Signature		Date:	
Typed or printed name:	Thomas Collins		
Signature		Date:	
Typed or printed name:	Dale Hopkins		
Signature		Date:	
Typed or printed name:	Susan Langford		
Signature	<i>Michael J. Sabin</i>	Date:	20 OCT 2000
Typed or printed name:	Michael Sabin		
The assignee owning an undivided interest in said original patent is <u>Compaq Computer Corporation</u> , and the assignee consents to the accompanying application for reissue.			

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application, any patent issued thereon, or any patent to which this declaration is directed.

Name of Assignee	Compaq Computer Corporation
Signature of Person Signing for the Assignee	
Type/printed name and title of person signing for assignee	Theodore S. Park, Senior Intellectual Property Counsel

10/11/2006 10:11:11 AM

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**REISSUE APPLICATION DECLARATION BY THE INVENTOR(S)**

Docket Number: 20206-0014(PT-TA-410)

Patent: 5,848,159

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is described and claimed in patent number 5,848,159, granted December 8, 1998, and for which a reissue patent is sought on the invention entitled PUBLIC KEY CRYPTOGRAPHIC APPARATUS AND METHOD, the specification of which

- ☒ is attached hereto along with a preliminary amendment.
- ☐ was filed on \_\_\_\_\_ as reissue application number \_\_\_\_\_ and was amended on \_\_\_\_\_.

I have reviewed and understand the contents of the above-identified specification, including claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I verily believe the original patent to be wholly or partly inoperative, for the reasons described below (Check all boxes that apply):

- ☒ by reason of defective specification or drawing.
- ☒ by reason of the patentee claiming more or less than he had the right to claim in the patent.
- ☐ by reason of other errors.

At least one error upon which reissue is based is described as follows:

At column 10, line 65, "where e is the number relatively prime to  $(p_1-1) \cdot (p_2-1)$ ." should be "where e is the number relatively prime to  $(p_1-1) \cdot (p_2-1) \cdot \dots \cdot (p_k-1)$ ."

All errors corrected in this reissue application arose without any deceptive intention on the part of the applicant.

Under the Paperwork Reduction Action of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

<b>(REISSUE APPLICATION DECLARATION BY THE INVENTOR, page 2)</b>				Docket Number: 20206-0014(PT-TA-410)	
Patent: 5,848,159					
As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.					
T. PARK, REG. 26,971; R. LANGE, REG. 27,296; W. POMS, REG. 18,782; G.P. SMITH, REG. 20,142; G. E. LANDE, REG. 22,222; A.C. ROSE, REG. 17,047; L.J. BOVASSO, REG. 24,075; C. BERMAN, REG. 29,249; D.J. OLDENKAMP, REG. 29,421; C. DARROW, REG. 30,166; M.E. HARRIS, REG. 26,690; K.A. MACLEAN, REG. 31,118; C. ROSENBERG, REG. 31,464; M.E. BROWN, REG. 28,590; S.R. HANSEN, REG. 38,486; D.N. LARSON, REG. 29,401; J.W. INSKEEP, REG. 33,910; H.D. JASTRAM, REG. 19,777; B. CANTER, REG. 34,792; C.J. LERVICK, REG. 35,244; L. CULLMAN, REG. 39,645; C.A.S. HAMRICK, REG. 22,586; R.O. GUILLOT, REG. 28,852; J. BOYCE, REG. 40,920; C. CHOU, REG. 41,672; A.B. DIEPENBROCK III, REG. 39,960; M.K. BOSWORTH, REG. 28,186; L. SHERRY, REG. 43,918; L. McROSS, REG. 40,427.					
Correspondence Address: Direct all communications about the application to:					
<input checked="" type="checkbox"/> Customer Number <u>25696</u>					
<input checked="" type="checkbox"/> Firm or Individual Name		Oppenheimer Wolff & Donnelly LLP			
Address		1400 Page Mill Rd.			
City	Palo Alto	State	California		Zip 94303
Country		United States of America			
Telephone		(650) 320-4000		Fax	(650) 320-4100
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this declaration is directed.					
Full name of sole or first inventor		Thomas Collins			
Inventor's signature		<i>Thomas Collins</i>			
Post Office Address	14890 Baranga Lane, Saratoga, CA 95070			Date	Oct. 20, 2000
Citizenship	United States of America				
Full name of second joint inventor		Dale Hopkins			
Inventor's signature		<i>Dale Hopkins</i>			
Post Office Address	2425 Ric Drive, Gilroy, CA 95020			Date	Oct. 20, 2000
Citizenship					
Full name of third joint inventor		Susan Langford			
Inventor's signature		<i>Susan Langford</i>			
Post Office Address	1275 Poplar Avenue, #101, Sunnyvale, CA 94086			Date	Oct. 20, 2000
Citizenship	United States of America				
Full name of fourth joint inventor		Michael Sabin			
Inventor's signature					
Post Office Address	883 Mango Avenue, Sunnyvale, CA 94087			Date	
Citizenship	United States of America				

Under the Paperwork Reduction Action of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

**REISSUE APPLICATION DECLARATION BY THE INVENTOR(S)**

Docket Number: 20206-0014(PT-TA-410)

Patent: 5,848,159

JC914 U.S. PTO  
09/694416  
10/20/00

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is described and claimed in patent number 5,848,159, granted December 8, 1998, and for which a reissue patent is sought on the invention entitled PUBLIC KEY CRYPTOGRAPHIC APPARATUS AND METHOD, the specification of which

- ☒ is attached hereto along with a preliminary amendment.
- ☐ was filed on \_\_\_\_\_ as reissue application number \_\_\_\_\_ and was amended on \_\_\_\_\_.

I have reviewed and understand the contents of the above-identified specification, including claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I verily believe the original patent to be wholly or partly inoperative, for the reasons described below (Check all boxes that apply):

- ☒ by reason of defective specification or drawing.
- ☒ by reason of the patentee claiming more or less than he had the right to claim in the patent.
- ☐ by reason of other errors.

At least one error upon which reissue is based is described as follows:

At column 10, line 65, "where e is the number relatively prime to  $(p_1-1) \cdot (p_2-1)$ ." should be -where e is the number relatively prime to  $(p_1-1) \cdot (p_2-1) \cdot \dots \cdot (p_k-1)$ .

All errors corrected in this reissue application arose without any deceptive intention on the part of the applicant.



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<b>(REISSUE APPLICATION DECLARATION BY THE INVENTOR, page 2)</b>	Docket Number: 20206-0014(PT-TA-410)
Patent: 5,848,159	

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Inventor's signature					
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Citizenship	United States of America				
Full name of fourth joint inventor		Michael Sabin			
Inventor's signature		<i>Michael J. Sabin</i>			
Post Office Address	883 Mango Avenue, Sunnyvale, CA 94087			Date	20 OCT 2000
Citizenship	United States of America				